How To | Upgrade Release Software on Allied Telesis Routers and Managed Layer 3 Switches

Introduction

The software in Allied Telesis routers and managed Layer 3 switches is constantly upgraded to improve networking functionality. At times, issues are identified in the software, customers request enhancements, and new technologies are integrated into the device.

This document applies to:

Routers
AR415S
AR440S, AR441S
AR442S
AR450S
AR750S, AR750S-DP
AR770S
AR725, AR745
AR720, AR740
AR410, AR410S

Switches
AT-8624T/2M
AT-8624PoE
AT-8648T/2SP
AT-8724XL
AT-8748XL
Rapier 24i, Rapier 24
Rapier 48i, Rapier 48
Rapier 16fi
Rapier 16f
Rapier G6
AT-8824
AT-8848
AT-9812T
AT-9816GB
SwitchBlade
AT-8948, x900-48FE
x900-48FE-N
AT-9924T
AT-9924SP
AT-9924T/4SP
AT-9924Ts
x900-24XT
x900-24XT-N
x900-24XS

What information is in this document?

This document has the following sections:

Full details for the commands to download and install software versions are in the “Managing Configuration Files and Software Versions” chapter of the Software Reference for your device.

Finding the features in a software version

Every software version comes out with a release note, which are available on the Allied Telesis website at the same place as release files. There are two kinds of release notes, depending on whether the version is an initial version or a maintenance version:

- initial version—these versions generally have many new features and enhancements, which the release note describes.
- maintenance version—these versions contain resolutions to issues and may contain enhancements, which the release note describes.

If you are upgrading from a maintenance version of one software version to a maintenance version of another, you need to read the release note for **both** the initial release and the maintenance release. For example, when upgrading from 276-03 to 281-04, read the note for 2.8.1 and for 281-04.

Background information on software versions

Software versions contain the code that enables your router or switch to run, and can be downloaded from the Allied Telesis website to upgrade your device. Version files are several megabytes in size, depending on platform and software version.

Types of software version

Different product series store the firmware in different types of files, as the following table shows.

Product	File type	File extension	Example
AT9900s and x900-24X Series	base package	.pkg	9924Ts_311-03.pkg
Other routers and switches	release	.rez	54-281.rez 54281-04.rez

The following sections give more information about each of these file types.

Caution: A software version is specific to a particular router or switch series. It is not possible to run a release on any router or switch series other than that for which the release was made. The same router or switch release may, however, run on several models in the same series (see "Release file product series abbreviations" on page 3). If you try to load the wrong software release into a device the boot process will fail.

Base package files

On AT9900s and x900-24X Series, a base package file contains the software that runs the switch and controls features.

Naming convention

Base packages use the following naming convention:

Files are named 9924Ts_yyy-zz.pkg, where:

- 9924Ts indicates that the product series is AT-9900s or x900-24X
- yyy is the version number, such as 311 for 3.1.1
- zz is the maintenance version number, such as 03 for the third maintenance version. If zz is 00, this is the initial release of that software version.

Maintenance version files are complete packages—these switches do not use a “patch” system.

Release files

On other managed Layer 3 switches and routers, a compressed release file contains the software that runs the router or switch and controls features.

Naming convention

Release files use the following naming convention:

Files are named xx-yyy.rez, where:

- xx identifies the product family
- yyy is the software version number, such as 281 for 2.8.1

When a maintenance version of a given initial software version is released, the naming convention changes to xxyyy-zz.rez, where:

- xx identifies the product family (as before)
- yyy is the version number of the initial version (as before), such as 281 for 2.8.1
- zz is the maintenance version number, such as 03 for the third maintenance version.

Maintenance version files contain the complete software—Allied Telesis routers and managed switches do not use a "patch" system since software version 2.7.1.

Release file product series abbreviations

The above discussion of file naming conventions refers to xx, which indicates the product series. The following table shows the full list of product series abbreviations and the models they apply to.

Release filename characters	Models
sb	SwitchBlade, AT-9812T, AT-9816GB
89	AT-8948, x900-48FE, x900-48FE-N AT-9924T, AT-9924SP, AT-9924T/4SP
86	Rapier 24i, Rapier 48i, Rapier 16fi AT-8824, AT-8848
87	AT-8724XL, AT-8748XL
sr	AT-8624T/2M, AT-8624PoE, AT-8648T/2SP
55	AR750S, AR750S-DP, AR770S
54	AR415S, AR440S, AR441S, AR442S, AR450S
52	AR410, AR410S, AR725, AR745
8	AR300 series

Help files

Help files contain a list of the full syntax of every router or switch command, sorted by feature. They use the following naming convention:

Files are named fff-xxxr.hlp, where:

- fff indicates the product series the help file applies to
- xxx is the software release
- r is the revision of the help file (a, b, c ...)

For example, the file 86-281a.hlp is the first revision of the help file for all AT-8600 series switches for software version 2.8.1.

Help file product name abbreviations

The following table shows the full list of help file product series abbreviations and the models they apply to.

Help filename characters	Models
99s	AT-9924Ts, x900-24XT, x900-24XT-N, x900-24XS
89	AT-8948, x900-48FE, x900-48FE-N AT-9924T, AT-9924SP, AT-9924T/4SP
sb	SwitchBlade
98	AT-9812T, AT-9816GB
rp	Rapier 24i, Rapier 48i, Rapier 16fi
88	AT-8824, AT-8848
87	AT-8724XL, AT-8748XL
86	AT-8624T/2M, AT-8624PoE, AT-8648T/2SP
700	AR750S, AR750S-DP, AR770S, AR725, AR745
400	AR415S, AR440S, AR441S, AR442S, AR450S, AR410, AR410S

How to upgrade the software

Upgrading software requires the following steps:

1. Load the release file or base package onto the switch or router
2. (In devices manufactured before approximately December 2006) enable the release or base package, specifying the licence number if necessary
3. Install the release or base package

The following sections describe each step.

For devices that have a GUI, you can also use the GUI to upgrade software releases (except on the SwitchBlade and AT-9800 Series switches). From the left-hand menu, select Management, then Software, then Upgrade. Click on the Help button for help.

How to load the files onto the device

Software files are available from www.alliedtelesis.co.nz/support/updates/patches.html. Load the relevant files onto a server on your system, from which you can load them to the switch or router. The switches and routers support loading with TFTP, HTTP, LDAP, and ZMODEM.

A number of software versions can be stored in your device at once. Your device contains Install information that specifies which software is loaded at start-up. You can change this information at any time—see "How to install software versions" on page 11.

Where are software versions stored?

The switch or router can store software versions in Flash, CompactFlash, or SD, depending on the model you are using. Software versions cannot be stored in NVS due to the size of the software release. The following table shows a list of devices and their memory types for software version storage.

	AR100	AR300	AR400	AR720/AR740	AR725/AR745	AR750S	AR770S	AT-8600	AT-8700XL	Rapier	AT-8800	AT8948/x900-48	AT-9900	AT-9900s/x900-24X	AT-9800	SwitchBlade
Flash	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓
CFlash					✓							✓	✓		✓	
SD														✓		

About the Loader

The Loader is responsible for loading and storing releases and other files into memory.

The Loader uses TFTP, HTTP, SCP, or ZMODEM to retrieve software files from a network host. Files to be loaded by the Loader must be resident on a server accessible via the network, or accessible via the ZMODEM protocol over an asynchronous port.

Configuring the Loader

You can configure default settings for the Loader. These default values apply to every load, unless you override them when you enter the **load** command, which you use to actually load the file (see the next sections). To configure the Loader, use the command:

```
set loader [attribute={cert|crl|cacert|default}]
  [baseobject={dist-name|default}] [delay={delay|default}]
  [destfile=dest-filename]
  [destination={bootblock|cflash|flash|nvs}]
  [httpproxy={hostname|ipadd|default}] [{keyid=key-id]
  [method={http|ldap|scp|tftp|web|www|zmodem|none|default}]
  [password=password] [asyn={port|default}]
  [proxyport={1..65535|default}] [srcfile|file=filename]
  [server={hostname|ipadd|default}] [servport={1..65535|default}]
  [username=username]
```

This command sets default values for the file to load, the network host to load it from, and the memory location in which to store the file. You can also configure a time delay between initiating a load and the start of the load. See the "Managing Configuration Files and Software Versions" chapter of the Software Reference for parameter explanations.

You can display the configuration of the Loader using the command:

```
show load
```

This shows the default configuration for the Loader as well as the status of any current file transfer.

Loading—general comments

To load a file, use the command:

```
load [optional parameters]
```

The following sections summarise which parameter apply to each loading method.

You can display the status of the current load by using the command:

```
show load
```

You can stop the current load at any time by using the command:

```
reset loader
```

This leaves the Loader ready to load again.

Note: Only one file can be loaded at a time. Another load cannot be initiated while a load is in progress.

Once you have loaded a file, its presence can be checked by using the command:

```
show file[=filename]
```

You can remove a file from the device by using the command:

```
delete file=filename
```

Loading a file using Trivial File Transfer Protocol (TFTP)

Trivial File Transfer Protocol (TFTP) is the IP standard protocol for file transfer with minimal capability and minimum overhead, based on UDP. It is the default loading method.

TFTP server software is included on the Documentation and Tools CDROM that shipped with your device.

You can specify the name of the file on the TFTP server, specify the path on the TFTP server and, if required, rename the file as it is saved to the device's memory. However, do not rename .rez or .pkg files.

To load a file onto your device with TFTP, use the command:

```
load method=tftp server={hostname|ipadd} {srcfile|file}=filename
  [delay=delay] [destfile=destfilename]
  [destination={bootblock|cflash|flash|nvs}]
```

You must specify the following parameters in either the **load** or **set load** commands:

- **server**
- **file** or **srcfile**—the name that the file has on the server

Loading a file using Hypertext Transfer Protocol (HTTP)

Your device has a built-in HTTP client and server.

To load a file onto your device with the HTTP client, use the command:

```
load method={http|web|www} server={hostname|ipadd}
  {srcfile|file}=filename
  [delay=delay] [destfile=destfilename]
  [destination={bootblock|cflash|flash|nvs}]
  [httpproxy={hostname|ipadd} [password=password]
  [proxyport=1..65535] [servport={1..65535|default}]
  [username=username]
```

You must specify the following parameters in either the **load** or **set load** commands:

- **method=http** or **web** or **www**
- **server**
- **file** or **srcfile**—the name that the file has on the server

Loading a file using ZMODEM

To load a file onto your device with ZMODEM, use the command:

```
load method=zmodem asyn=port [delay=delay] [destfile=destfilename]
  [destination={bootblock|cflash|flash|nvs}]
```

You must specify the following parameters in either the **load** or **set load** commands:

- **method=zmodem**
- **asyn**

Loading a file using Secure Copy (SCP)

To load a file onto your device with SCP, use the command:

```
load method=scp {file|srcfile}=filename {keyid=key-id|password=password}
  server={hostname|ipadd|ipv6add} username=username
  [delay=delay] [destfile=destfilename] [destination={cflash|flash|nvs}]
```

You must specify the following parameters in either the **load** or **set load** commands:

- **method=scp**
- **server**
- **file** or **srcfile**—the name that the file has on the server
- **username**
- **keyid** or **password**, depending on how the server authenticates the SCP client

How to enable the software and its licence

From December 2006 or January 2007 (depending on the model), the routers and managed Layer 3 switches listed on page 1 are manufactured with an unrestricted software release licence. To upgrade the firmware, simply download it, as described in the previous section, and then install it, as described in "How to install software versions" on page 11.

However, on routers and switches manufactured before this date, when you upgrade firmware, you need to:

- enable the base package or release
- enter a licence password if you are upgrading to a new major software version (for example, from 2.7.x to 2.8.x). However, minor and maintenance versions use the same licence as the initial software version that they update. When you enable them, you do not need to re-enter licence information

These devices can also be converted to the unrestricted software release licence. Contact your Allied Telesis representative for more information.

Checking whether your device needs a licence

To check whether your device already has the unrestricted software release licence, use one of the commands:

(on AT9900s and x900-24X Series) `show system licence`

(on other managed Layer 3 switches and routers) `show release`

You have the unrestricted licence if the output includes a “full” licence for a release or base package called “any”, like this:

```
Release                  Licence        Period
-------------------------------------------------------------------
any                      full           -
-------------------------------------------------------------------
```

If your device does not have this licence, and you want to upgrade to a new major software version, contact your Allied Telesis representative.

Enabling minor upgrades

Even if your device was manufactured before December 2006, you do not need a licence for a minor upgrade (for example, upgrading any 2.7.x version to another 2.7.x version). You can either:

- request the unrestricted software release licence from your Allied Telesis representative, or
- enable the new version. The command to use to enable the version depends on the type of software (base package or release file). The following sections give more information about each.

Enabling a base package

On AT9900s and x900-24X Series, to enable a base package, use the command:

```
enable base=release-filename version=release-number
```

For example, to enable 311-03 when upgrading from 311-02, use the command:

```
enable base=9924s_311-03.pkg ver=3.1.1
```

Enabling a release file

On other managed Layer 3 switches and routers, to enable a release, use the command:

```
enable release=release-filename number=release-number
```

For example, to enable 55281-04 when upgrading an AR750S router from 55281-03, use the command:

```
enable release=55281-04.rez number=2.8.1
```

Enabling a release file on a second SwitchBlade controller

On SwitchBlades with two switch controllers, the **enable release** command enables the software version on the master controller only. It does not enable it on the slave—you have to do this separately. If the slave becomes the master and the software version had not been enabled on the slave, the software version will be unavailable.

To enable a software release on the slave switch controller, use the command:

```
enable system sysr slvrelease=release-name slvnumber=number
```

For example, to upgrade from sb275a-02 to sb275a-03, use the commands:

```
enable release=sb275a-03.rez number=2.7.5
enable system sysr slvrelease=sb275a-03.rez slvnumber=2.7.5
```

This **sysr** command enables the future potential use of the software version on the slave. It does not change the current software version running on the switch; this is determined by the install records on the master switch controller.

You can see the current status of version licences on the slave switch controller by using the command:

```
show system sysr slave
```

How to install software versions

About the Install module

The Install module is responsible for maintaining installation information and booting from the specified files. An **install** is a record that identifies a software version and sometimes the associated GUI file. The following installs are maintained by the Install module:

- preferred
- temporary
- default (except on AT-9900s and x900-24X series switches)

The three different installs handle the following situations:

- The **preferred** install is the install that will normally be used on the device.
- The **temporary** install allows a software version to be loaded once only, in case it causes the device to reboot.
- The **default** install is the install of last resort. A minimal set of software is always present on the device, in either EPROM or the Flash boot block. If there is no other suitable install record to boot from, the device uses the default install.

The device inspects install information in strict order as follows:

4. The device checks for a temporary install. If one is specified, the device loads it into RAM and runs it. The device then deletes the temporary install information so it cannot load again. This information is deleted even if the temporary install causes the device to reboot immediately.
5. If no temporary install is defined or the temporary install information is invalid, the device checks for a preferred install. If present, the preferred install is loaded. The device never deletes the preferred install information.
6. If neither a temporary install nor a preferred install is specified, the device loads the default install, except on AT-9900s and x900-24X series switches. The Install module ensures that the default install is always present in the device.
7. On AT-9900s and x900-24X series switches, if a temporary or preferred install is not specified or the switch cannot find a valid one, it loads the fallback software, which is always present.

Installing new software on AT-9900s and x900-24X series

To test a new software version, specify it in the temporary install on the device, then reboot the device. When the device starts up successfully with the new software, specify it in the preferred install.

If the device does not start up successfully with the new software from a temporary install, it will start up with the old preferred software. Load the files again in case they were corrupted when loading, and try again. If this does not work, contact your authorised distributor or reseller.

To specify the install on AT-9900s and x900-24X series switches, use the command:

```
set install={temporary|preferred} basepackage=package-filename
  [help=help-filename|none]
```

To specify the install on other devices, use the command:

```
set install={temporary|preferred} release=release-name
  [gui=filename]
```

To display the current install information, including which install is currently running in your device, and how the install information was checked at the last reboot, use the command:

```
show install
```

To delete a particular install, use the command:

```
delete install={temporary|preferred}
```

Software for managing upgrades

Allied Telesis offers the following products that simplify network-wide deployment of software upgrades:

- AlliedView NMS—a comprehensive network management platform which includes software upgrade management for a range of Allied Telesis devices
- AlliedView-UM—a Java-based application that allows for fast and efficient distribution of software releases, patches and other files onto a range of Allied Telesis devices

For more information about these products, including trial versions, contact your Allied Telesis representative or visit www.alliedtelesis.com.

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